

What is claimed is:

1. A method of preparing a separation medium starting with an aqueous solution of essentially spherical primary particles of a defined size, comprising the following steps:
 - a) inverse suspension dispersing into oil said aqueous solution of primary particles to form a droplet in oil dispersion;
 - b) evaporating to remove water in said aqueous solution dispersion and to encourage fusion between particles to form spherical aggregates;
 - c) size fractionating of aggregates from step b); and optionally
 - d) suspending the aggregates from step c) in aqueous solution and repeating steps a) to c) an optional number of times to form progressively larger spherical aggregates.
2. The method of claim 1, wherein the primary particles comprise a synthetic polymer selected from the group consisting of polymerised styrene and/or divinylbenzene, (meth)acrylates, vinyl esters, vinyl ethers, vinyl amides, meth(acrylamides), dienes and mixtures of two or more of the foregoing.
3. The method of claim 1, wherein the primary particles are 50-1000 nm in diameter.
4. The method of claim 1, wherein the primary particles are functionalised.

5. The method of claim 4, wherein the fusion in step b) is between functional groups on the primary particles and the fusion is caused by a water-soluble polymer and a cross-linker.
- 5 6. The method of claim 1, wherein the fusion in step b) is by thermal fusion of the particles.
7. The method of claim 4, wherein the water-soluble polymer is polyethyleneimine and the cross-linker is chosen from N,N'-methylenebisacrylamide and diacryloyl piperazine.
- 10 8. The method of claim 1, wherein the evaporation in step b) is a Dean-Stark distillation.
- 15 9. The method of claim 1, further comprising, in a step before step a), derivatizing functional groups of the polymers gel to provide a separation medium, which exhibits one or two different kind of ligands.
10. A separation medium comprised of one or more aggregates, wherein each aggregate comprises a plurality of porous and essentially spherical synthetic polymer beads assembled into essentially spherical aggregates of controlled size.
- 20 11. The medium of claim 10, wherein the mass ratio of synthetic polymer:beads in each aggregate is about 0.1:100 to 10:100.
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12. The medium of claim 10, wherein the beads comprises a synthetic polymer selected from the group consisting of polymerised styrene and/or divinylbenzene, (meth)acrylates, vinyl esters, vinyl ethers, vinyl amides, meth(acrylamides), dienes and a mixture of two or more of the foregoing.
13. The medium of claim 10, wherein the polymers have been chemically cross-linked.
14. The medium of claim 10, wherein the polymers have been thermally fused.
15. The medium of claim 10, which exhibits one kind or two different kinds of ligands coupled to the beads within the aggregates.
16. The medium of claim 10, wherein each aggregate comprises at least about 10 to up to 400 beads.
17. The medium of claim 10, wherein the aggregates are separate and essentially spherical entities.
18. The medium of claim 10, comprising a membrane including a plurality of aggregates provided on a support.